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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,756	03/13/2001	Gary Lynn Eesley	DP-301709	2710

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PATRICK M. GRIFFIN, ESQ.
Delphi Technologies, Inc.
Legal Staff - M/C 480.414.420
P.O. Box 5052
Troy, MI 48007-5052

EXAMINER

PATEL, NIHIR B

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 05/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,756

Applicant(s)

EESLEY ET AL.

Examiner

Nihir Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-7, drawn to heat sink apparatus, classified in class 165, subclass 80.3.
- II. Claims 8-15, drawn to method of making, classified in class 29, subclass 890.03.
- III. Claims 16-20, drawn to method of cooling, classified in class 165, subclass 186.

The inventions are distinct, each from the other because of the following reasons:

Inventions group I and II are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case, the fins and foam block of apparatus claims 1-7 could be attached to the surface of the spreader plate other than furnace brazing as specifically recited in method claims 8-15. The fins and the foam block could be attached to the surface of the spreader plate by welding or be bolted.

Inventions group I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, two heat conductive fins are used as recited in the apparatus claims 1-7 and method of cooling claims 16-20, whereas if desired one heat conductive fin could have been used.

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Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Patrick M. Griffin on May 13, 2002 a provisional election was made without traverse to prosecute the invention of group I, claims 1-7.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 4 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Referring to claim 3, there is insufficient antecedent basis for limitations "the fins", "the spreader plate", and the flowing fluid".

Referring to claim 4, there is insufficient antecedent basis for limitations "the flowing fluid".

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,5,6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Elwell U.S. Patent No. 5,315,154. Referring to claim 1, Elwell discloses a electronic assembly including heat absorbing material for limiting temperature through isothermal solid-solid phase transition that comprises a heat spreader plate (12) to which the components (14) to be cooled are connected; at least two heat conducting fins (12b) that are positioned substantially parallel to one another and which are connected substantially perpendicular to the heat spreader plate (12); and highly porous heat conductive reticulated foam block (16) that fills the space between parallel fins (12b). Refer to figures 11,12, and 13.

Referring to claim 2, Elwell clearly shows that the fins (12b) and the foam block (16) are connected to one surface of the heat spreader plate (12). Refer to figures 11,12, and 13.

Referring to claim 5, Elwell clearly states that the heat spreader plate, the fins, and the heat conducting foam are made from the same or different thermal conducting materials. Refer to column 2 lines 60 through 68 and column 3 lines 15 through 50.

Referring to claims 6 and 7, Elwell clearly states that the heat spreader plate, fins, and heat conducting foam are made from aluminum, copper, graphite or aluminum-nitride ceramic. Refer to column 2 lines 20 through 30 and lines 60 through 68.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elwell U.S. Patent No. 5,315,154 in view of Lindquist et al. U.S. Patent No. 5,304,845.

Elwell discloses the applicant's invention as claimed with the exception of providing an equation used to determine fin height and stating the fin height.

Lindquist discloses an apparatus for an air impingement heat sink using secondary flow generators that does state the height of the fin used. Therefore it would have been obvious to modify Elwell's invention by providing an equation used to determine fin height and stating the fin height. It is also obvious that a numerical equation has to be used to determine the proper fin height to be used in a particular situation.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elwell U.S. Patent No. 5,315,154 in view of McCoy et al. U.S. Patent No. 4,714,049.

Elwell discloses the applicant's invention as claimed with the exception of providing an equation used to determine the fin spacing and stating the fin spacing.

McCoy discloses an apparatus to reduce or eliminate fluid bed tube erosion that does state the fin spacing. Therefore it would have been obvious to modify Elwell's invention by providing an equation used to determine fin height and stating fin spacing. It is also obvious that

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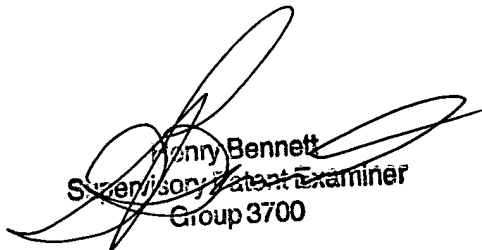
a numerical equation has to be used to determine the proper fin spacing to be used in particular situation.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (703) 306-3463. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful the examiner supervisor Henry Bennett can be reached at (703) 308-0101.

NP
May 14, 2002


Henry Bennett
Supervisory Patent Examiner
Group 3700